

an electromagnetic driving part housed in said case, for reciprocating said moving part; and

a spring member disposed at least between said case and said moving part, and between said case and said amplitude control spindle, for forming a spring oscillation system,

wherein a resonance frequency of said spring oscillation system is equal to a resonance frequency of said linear oscillator or a frequency in a vicinity thereof,

wherein said spring member includes:

a first spring disposed between a fixed part comprised of said case and said electromagnetic driving part and said moving part;

a second spring disposed between said moving part and said amplitude control spindle; and

a third spring disposed between said amplitude control spindle and said fixed part.

6. (Amended) A linear oscillator comprising:

a moving part reciprocating;

a case containing incorporating said moving part; and

an amplitude control spindle supported in said case to be movable,

wherein said moving part and said amplitude control spindle reciprocate at a resonance frequency of said linear oscillator or a frequency in a vicinity thereof;

an electromagnetic driving part housed in said case, for reciprocating said moving part; and

a spring member disposed at least between said case and said moving part, and between said case and said amplitude control spindle, for forming a spring oscillation system,

wherein a resonance frequency of said spring oscillation system is equal to a resonance frequency of said linear oscillator or a frequency in a vicinity thereof,

wherein said electromagnetic driving part includes a coil to thereby use a coil current, thus enabling controlling a reciprocating motion,

wherein said electromagnetic driving part includes:

a coil surrounding an outer periphery of said moving part;

second yokes each disposed at each of both ends of said coil;

a pair of permanent magnets which are each disposed on an end face of each of said second yokes and which are magnetized symmetrically with respect to a center of said coil; and

first yokes provided on sides of said permanent magnets opposite to said second yokes respectively.

11. (Amended) A linear oscillator comprising:

a moving part reciprocating;

a case containing incorporating said moving part; and

an amplitude control spindle supported in said case to be movable,

wherein said moving part and said amplitude control spindle reciprocate at a resonance frequency of said linear oscillator or a frequency in a vicinity thereof;

an electromagnetic driving part housed in said case, for reciprocating said moving part; and

a spring member disposed at least between said case and said moving part, and between said case and said amplitude control spindle, for forming a spring oscillation system,

wherein a resonance frequency of said spring oscillation system is equal to a resonance frequency of said linear oscillator or a frequency in a vicinity thereof,

wherein:

said spring member is formed of a leaf spring; and